DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/5/2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 15, 17-20, 23-24 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) (Previously cited) in view of Ueyama et al. (US Pat. 5,508,493) (newly cited).

4. Jank et al. discloses a welding apparatus 1 (Fig. 1) including a welding current source 2 (Fig. 1), a control device 4 (Fig. 1), a welding torch 10 (Fig. 1) and a welding wire 13 (Fig. 1), wherein different welding parameters are adjustable via at least one device selected from the group consisting of an input device 22 (Fig. 1) provided on the welding apparatus, an output device 22 (Fig. 1) provided on the welding apparatus, and a remote controller, wherein an adjustment element 47 (Fig. 3) for the adjustment of the

heat balance or heat input into the workpiece 16 (Fig. 1) to be worked, via a cyclic combination of at least a first welding process phase and a second welding process phase, is arranged on the at least one device, wherein the first welding process phase has a high energy input and the second welding process phase has a low energy input, and wherein the first welding process phase has a high current phase and a base current phase and the second welding process phase starts during the base current phase. Jank et al. also discloses a welding apparatus 1 (Fig. 1) that has an input/output 22 (Fig. 1) capable of setting and storing of a welding process, various welding parameter (Col. 5, Lines 25-33). Therefore, the adjustment element 47 (Fig. 3) capable of adjusting to any welding process, parameters to a specific program corresponding to user defined. Jank et al. does not disclose a ratio of the number of pulses of the first welding process phase to the number of pulses of the second welding process phase is adjusted to adjust or control the heat balance or heat input into the workpiece. Ueyama discloses a ratio of the number of pulses of the first welding process phase (Fig. 97 shown 3 pulses for T1) to the number of pulses of the second welding process phase (Fig. 97 shown 4 pulses for T2) is adjusted to adjust or control the heat balance or heat input into the workpiece (Fig. 96 clearly shown the number of pulses is adjust between the 2 phases T1 and T2) (Col. 71, Lines 5 to Col. 72 Lines 10). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank et al., a ratio of the number of pulses of the first welding process phase to the number of pulses of the second welding process phase is adjusted to adjust or control

the heat balance or heat input into the workpiece, as taught by Ueyama et al., for the purpose of controlling the arc length between the first and second phase.

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Ueyama et al. (US Pat. 5,508,493) and further view of Hsu (US Pat. 6,717,107) (previously cited).

6. Jank/Ueyama disclose substantially all features of the claimed invention as set forth above including from Jank, an input/output device 22 (Fig. 1) for adjusting different welding process and parameters **except** the first welding process phase is a pulse current phase and a cyclic combination of the second welding process phase with the pulse current phase. Hsu discloses the first welding process phase is a pulse current phase and a cyclic combination of the second welding process phase with the pulse current phase (Col. 2, Lines 19-22). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank/Ueyama, the first welding process phase is a pulse current phase and a cyclic combination of the second welding process phase with the pulse current phase is adjustable at the at least one device, as taught by Hsu, for the purpose of controlling to optimize the performance of the welder.

7. Claims 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Ueyama et al. (US Pat. 5,508,493) and further view of Tanaka et al. (US Pat. 4,100,389) (previously cited).

8. Jank/Ueyama disclose substantially all features of the claimed invention as set forth above including from Jank, an input/output device 22 (Fig. 1) for adjusting different

welding process and parameters **except** the first welding process phase is a spray-arc phase and a cyclic combination of the second welding process phase with the spray-arc phase. Tanaka et al. discloses the first welding process phase is a spray-arc phase and a cyclic combination of the second welding process phase with the spray-arc phase (Col. 3, Lines 45-65). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank/Ueyama, the first welding process phase is a spray-arc phase and a cyclic combination of the second welding process phase with the spray-arc phase, as taught by Tanaka et al., for the purpose of the purpose of having a welding process that reduces spatter during bridge rupturing.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Ueyama et al. (US Pat. 5,508,493) and further view of Norrish et al. (US Pub. 2002/0008095) (previously cited).

10. Jank/Ueyama disclose substantially all features of the claimed invention as set forth above including from Jank, an input/output device 22 (Fig. 1) for adjusting different welding process and parameters **except** the first welding process phase is a spray short-circuit arc welding phase and a cyclic combination of the spray short-circuit arc welding process phase with the second welding process phase. Norrish et al. discloses the first welding process phase is a spray short-circuit arc welding phase and a cyclic combination of the spray short-circuit arc welding process phase with the second welding process phase (Par. 6). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank/Ueyama, the first welding process phase is a spray short-circuit arc welding phase and a cyclic combination of the

spray short-circuit arc welding process phase with the second welding process phase, as taught by Norrish et al., for the purpose of having a welding process that reduces spatter during bridge rupturing.

11. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Ueyama et al. (US Pat. 5,508,493) and further view of Plottier et al. (US Pat. 6,384,376) (previously cited).

12. Ueyama disclose substantially all features of the claimed invention as set forth above including from Jank, an input/output device 22 (Fig. 1) for adjusting different welding process and parameters **except** the first welding process phase is a pulse welding phase and the second welding process phase is a spray-arc welding phase and a cyclic combination of the first welding process phase with the second welding process phase. Plottier et al. discloses the first welding process phase is a pulse welding phase and the second welding process phase is a spray-arc welding phase and a cyclic combination of the first welding process phase with the second welding process phase (Col. 1, Lines 46-58; Claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank/Ueyama, the first welding process phase is a pulse welding phase and the second welding process phase is a spray-arc welding phase and a cyclic combination of the first welding process phase with the second welding process phase is adjustable at the at least one device, as taught by Plottier et al., for the purpose of having variety of welding process mode for different materials.

13. Claims 30, 2 and 6-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Artelsmair (WO 00/64620) (previously cited) in view of Hsu et al. (US Pat. 6,717,107) and Ueyama et al. (US Pat. 5,508,493).

14. Artelsmair et al. discloses a method for controlling or adjusting a welding process using a melting electrode 13 (Fig. 1) comprising the steps of: (a) igniting an electric arc 15 (Fig. 1); and (b) subsequently carrying out a welding process adjusted according to several different welding parameters (Page 2, Lines 56-59 of English translation) and controlled by a control device 4 (Fig. 1) using a welding current source 2 (Fig. 1). Artelsmair et al. fails to discloses the welding process comprises at least a first welding process phase and a second welding process phase; wherein the first welding process phase has a high energy input and the second welding process phase has a low energy input resulting from at least one of different material transitions and electric arc types; wherein the first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece to be worked; and wherein the first welding process phase has a high current phase and a base current phase and the second welding process phase starts during the base current phase; and wherein a ratio of the number of pulses of the first welding process phase to the number of pulses of the second welding process phase is adjusted to adjust or control the heat input into the workpiece. Hsu et al. discloses the welding process comprises at least a first welding process phase and a second welding process phase (Col. 3, Lines 59- 64); wherein the first welding process phase has a high energy input and the second welding process phase has a low energy input resulting from at least

one of different material transitions and electric arc types (Col. 1, Line 66 to Col. 2, Line 7); wherein the first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece W (Fig. 1) to be worked (Col. 1, Lines 59-62); and wherein the first welding process phase has a high current phase and a base current phase and the second welding process phase starts during the base current phase (Fig. 4 below shows the sample cycle between the low heat follow by the high heat during the base current). Ueyama discloses a ratio of the number of pulses of the first welding process phase (Fig. 97 shown 3 pulses for T1) to the number of pulses of the second welding process phase (Fig. 97 shown 4 pulses for T2 for T2) is adjusted to adjust or control the heat balance or heat input into the workpiece (Fig. 96 clearly shown the number of pulses is adjust between the 2 phases T1 and T2) (Col. 71, Lines 5 to Col. 72 Lines 10). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Artelsmair, the welding process comprises at least a first welding process phase and a second welding process phase; wherein the first welding process phase has a high energy input and the second welding process phase has a low energy input resulting from at least one of different material transitions and electric arc types; wherein the first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece to be worked; and wherein the first welding process phase has a high current phase and a base current phase and the second welding process phase starts during the base current phase, as taught by Hsu, for the purpose of optimizing the performance of the welder process; and a ratio of the number

of pulses of the first welding process phase to the number of pulses of the second welding process phase is adjusted to adjust or control the heat balance or heat input into the workpiece, as taught by Ueyama et al., for the purpose of controlling the arc length between the first and second phase.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Artelsmair (WO 00/64620) (previously cited) in view of Hsu et al. (US Pat. 6.717.107), Ueyama et al. (US Pat. 5,508,493) and further view of Norrish et al. (US Pub. 2002/0008095).

16. Artelsmair/Hsu/Ueyama disclose substantially all features of the claimed invention as set forth above **except** a spray-arc phase is used as said first welding process phase having a high energy input. Norrish et al. discloses a spray-arc phase is used as said first welding process phase having a high energy input (Par. 6). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have a spray-arc phase is used as said first welding process phase having a high energy input, as taught by Norrish et al., for the purpose of having a welding process that reduces spatter during bridge rupturing.

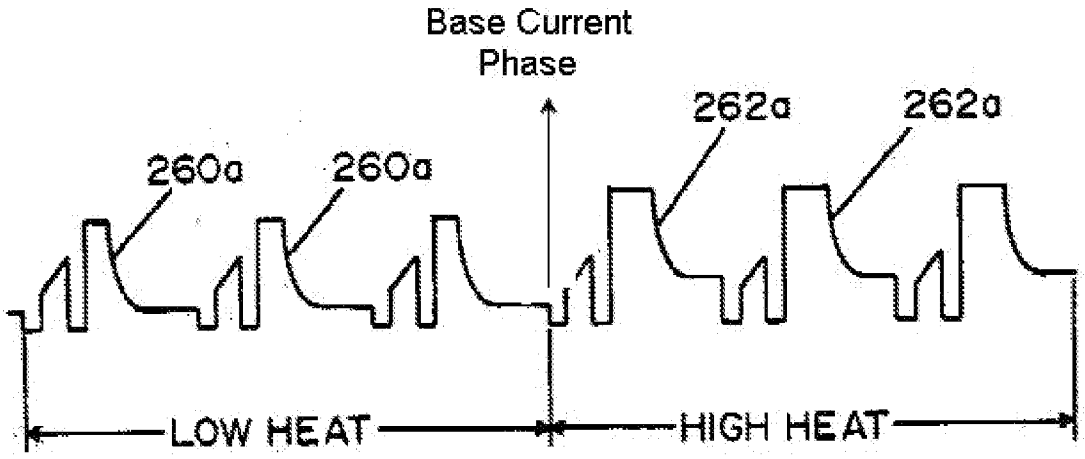

FIG. 4

17. Applicant's arguments with respect to claims 2-3, 6-15 and 17-30 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-7828. The examiner can normally be reached on Monday-Friday, 9M-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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